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ENUMERATION OF THE NORTH AMERICAN CERCOSPORÆ.

WITH DESCRIPTIONS OF THE SPECIES.

BY J. B. ELLIS AND BENJAMIN M. EVERHART.

105. CERCOSPORA RETICULATA, Pk. 34th Rep. N. Y. State Mus., p. 47 (with figs.)

Spots large, irregular, brown. Hyphæ amphigenous, short, tufted, nearly colorless. Conidia numerous, very variable in length, bacillary or subcylindrical, colorless. Conidia numerous, very variable in length, bacillary or subcylindrical, colorless, 30—100 x 5—6 *u*, with 3—7 septa.

The large spots sometimes occupy nearly half the leaf. They are dry and brittle. The pure white color of the fungus contrasts beautifully with the dark brown color of the spots. The conidia are usually more abundant along the veinlets than elsewhere, and thus giving a reticulated appearance to the spots.

On leaves of *Solidago altissima*, Catskill Mts., N. Y., Aug., (Peck.)

106. CERCOSPORA GRISELLA, Pk. 33d Rep. N. Y. State Mus., p. 29.

"Spots suborbicular, indeterminate, yellowish. Hyphæ short, minutely tufted, septate. Conidia slightly thickened towards one end (below ?) or subfusiform, colorless, triseptate, 40—50 *u* long. Living leaves of *Erigeron annuum*, July, N. Y. (Peck.) The tufts are so numerous and so minute as to give the under surface of the leaf the appearance of being suffused by a minute pruinosity."

Is this sufficiently distinct from *Cercospora cana* Sacc.?

107. CERCOSPORA TOXICODENDRI, Ell. Am. Nat., Oct. 1882, p. 811.

Tufts snow white on black spots (1—2 mm). Hyphæ short, 25—30 x 5½ *u*, pale brown. Conidia slender obclavate, faintly multiseptate, hyaline, attenuated above, 50—60 x 5—6 *u*.

On leaves of *Rhus Toxicodendron*, Newfield, N. J. Not since found, and hence doubtful.

108. CERCOSPORA APOCYNI, E. & K. Bull. Torr. Bot. Club, XI, p. 121

Amphigenous, on small (1—3 mm.) brown spots with a narrow raised border; often occupying only a small (1 mm.) circular area on the brown spots, or sometimes several small white patches of conidia on the same spot. Hyphæ very short, 16—20 x 2.5 *u*, tufted, hyaline, simple, entire. Conidia narrow-cylindric, 45—60 x 2.5 *u*, granular and becoming faintly 3—4-septate.

The spots are at first purplish brown, with a purplish border, but become rusty brown except where whitened by the conidia.

On leaves of *Apocynum*, Aug., Kansas (Kellerman.)

C. Species standing ambiguously between CERCOSPORA and RAMULARIA.

(The species originally intended to be placed here will be included in the enumeration of the species of RAMULARIA.)

The following species were received too late for classification.

(109.) CERCOSPORA LEPIDII, Pk. 35th Rep. N. Y. State Mus.

Spots small, orbicular, grayish-brown or subcinerous, usually marked with faint concentric lines. Hyphæ amphigenous, about 35 *u* long, single or two or three in a cluster, pallid. Conidia very long, tapering upwards, slightly constricted at the septa, eight to nine-septate, 150—200 *u* long 20—25 *u* wide in the widest part, greenish.

On living leaves of *Lepidium campestre*, May, N. J. (Peck.)

This is a very singular species. This fungus occurs on both sides of the leaf, but is more abundant on the upper side. The hyphæ are short and thick, and occasionally branched. The septa occur in the broad part of the spore, the upper part being much narrowed. Occasionally a cell is divided by a longitudinal septum.

(110.) CERCOSPORA DATURÆ, Pk. 35th Rep. N. Y. State Mus.

Spots suborbicular or irregular, varying in color from cinereus to reddish-brown, sometimes marked by irregular or flexuous elevated lines.

Hyphæ amphigenous, scarcely tufted, about equaling the length of the conidia, which are rather large, narrowed upwards, greenish, four to six-septate, 55—80 *u* long, about 12 *u* broad in the widest part.

On living leaves of *Datura stramonium*, June, N. Y. (Peck.)

(111.) Cercospora longispora, Pk. 35th Rep. N. Y. State Mus.

Spots suborbicular, sometimes confluent and irregular, grayish-brown, the margin slightly darker. Hyphæ amphigenous, sometimes epiphyllous only, tufted, 20—40 *u* long, colored. Conidia very long, variously curved or flexuous, colorless, simple or obscurely septate, sometimes forked, 60—170 *u* long, about 4 *u* broad.

On living leaves of *Lupinus perennis*, July, N. Y. (Peck.)

The species is apparently very distinct from *C. Lupini*, Cke., and is well marked by its densely tufted, black hyphæ and its very long, hyaline conidia.

(112.) Cercospora varia, Pk. 35th Rep. N. Y. State Mus.

Spots suborbicular, sometimes large and irregular, reddish-brown, with a darker margin, reddish-gray beneath. Hyphæ few, hypophyllous, tufted, short, slightly colored. Conidia subcylindrical, one to five-septate, sometimes multinucleate, 40—70 *u* long.

On living leaves of *Viburnum acerifolium*, July, N. Y. (Peck.)

A form of this species occurs on *Viburnum Lentago*. In it the spots are brown and the hyphæ are shorter. Doubtfully distinct from *C. tinea*, Sacc.

(113.) Cercospora Comari, Pk. 35th Rep. N. N. State Mus.

Amphigenous but more perfectly developed below. Hyphæ elongated, 150—200 x 3—4 *u*, continuous or with an occasional septum, geniculate and bent above, reddish-brown, collected in little fascicles which appear under the lens like a thin, erect, brown pubescence. Conidia clavate, dark brown, about 5-septate, sometimes constricted at the septa, 40—60 x 6—8 *u*. The fungus first appears in little brown patches (not on definine spots) which soon become darker and spreading, become confluent and blacken the greater part of the leaf.

On *Potentilla palustris*, New York (Peck.)

(114.) Cercospora Alismatis, Ellis & Holway, n. s.

Spots indefinitely limited, brown, becoming whitish or gray in the center, of irregular shape, ¼—1 cm. Hyphæ tufted, epiphyllous, dark brown, continuous, abruptly bent, subnodulose and subdentate above, 50—75 x 5—6 *u*. Conidia hyaline, slender, gradually attenuated above, 5—9 septate 60—120 x 3—4 *u*.

On *Alisma Plantago*, Decorah, Iowa, July (Holway.)

(115.) Cercospora personata, (B & C.) (*Cladosporium personatum* B. & C. Grev., III, p. 106.)

Forming small brown, orbicular spots (2—4 mm.) on the lower surface of the leaves. Hyphæ densely tufted, short, brown, continuous. Conidia mostly clavate, pale brown, about 3-septate, 30—50 x 5—6 *u*. Originates beneath the epidermis.

On leaves of *Arachis hypogœa*, Carolina and Alabama (Ravenel.) According to Berkeley (l. c.), "a variety occurs on Cassia occidentalis which amongst the usual threads has others which are slender, articulated, with longer oblong 1-septate spores."

(116.) CERCOSPORA SIMULATA, Ellis & Everhart, n. s.

Hypophyllous, forming olive brown patches ½—1 cm. across. Tufts effused. Hyphæ fasciculate, dark brown, slender, undulate and crisped above, 150—200 x 3 *u*, septate. Conidia oblong or clavate-oblong, brownish, about 3-septate, 20—45 x 4—5 *u*. Has longer, darker hyphæ and shorter conidia than *C. olivacea* (B. & C.), and differs also from *C. effusa* (B & C.)

On leaves of *Cassia Marylandica*, Pine Hills, Ills. (Earle.)

ALPHABETICAL LIST OF HOST-PLANTS.

(The reference after each name is to the serial number in the preceding descriptions.)

Abutilon Avicennæ (Cercospora althæina, Sacc.) 56.
Acalypha Virginica (C. Acalyphæ, Pk.) 10.
Alisma Plantago (C. Alismatis, Ell. & Hol.) 114.
Althæa rosea (C. althæina, Sacc.) 56.
Amorpha canescens (C. passaloroides, Winter) 73.
Ampelopsis quinquefolia (C. Ampelopsidis, Pk.) 98.
Amphicarpæa monoica (C. monoica, Ell. & Hol.) 67.
Apios tuberosa (C. tuberosa, E. & K.) 54.
Apocynum (C. Apocyni, E. & K.) 108.
Arachis hypogæa (C. personata, B. & C.) 115.
Aralia nudicaulis (C. leptosperma, Pk.) 53.
Asclepias Cornuti (C. Asclepiadis, Ell.) 8.
Asclepias incarnata (C. clavata, Gerard) 96.
Asclepias obtusifolia (C. clavata, Gerard) 96.
Baptisia (C. velutina, E. & K.) 82.
Beet leaves (C. beticola, Sacc.) 12.
Bœhmeria cylindrica (C. Bœhmeriæ, Pk.) 51.
Calla palustris (C. Callæ, Pk. & Clinton) 21.
Callicarpa (C. Callicarpæ, Cke.) 70.
Callirrhoe (C. althæina, Sacc.) 56.
Cassia obtusifolia (C. nigricans, Cke.) 84.
Cassia Marylandica (C. simulata, E. & E.) 116.
Cassia occidentalis (C. occidentalis, Cke.) 74.
Caulophyllum thalictroides (C. Caulophylli, Pk.) 62.
Celery—cultivated (C. Apii, Fres.) 50.
Cephalanthus occidentalis (C. Cephalanthi, E. & K.) 24.
Cercis Canadensis (C. cercidicola, Ell.) 49, (C. chionea, E. & K.,) 102.
Chenopodium album (C. Chenopodii, Fres.) 4.
Clematis (C. rubigo, Cke. & Hark.) 64.
Clematis Virginiana (C. squalidula, Pk.) 63.
Crotalaria sagittalis (C. Demetrioniana, Wint.) 40.

Croton glandulosum (C. crotonifolia, Cke.) 16.
Datura stramonium (C. Daturæ, Pk.) 110.
Desmodium acuminatum (C. Desmodii, E. & K.) 75.
Dianthera Americana (Diantheræ, E. & K.) 2.
Diodia teres (C. Diodeæ, Cke.) 41.
Dioscorea villosa (C. Dioscoreæ, E. & M.) 94.
Diospyros Virginiana (C. Diospyri, Thuem.) 81.
Dipsacus sylvestris (C. elongata, Pk.) 55.
Dipteracanthus ciliosus (C. consociata, Winter) 87.
Echinocystis lobata (C. Echinocystis, E. & M.) 65.
Elm (?) leaves (C. sphæriæformis, Cke.) 77.
Epilobium alpinum (C. Epilobii, Schn.) 79.
Erigeron (C. cana, Sacc.) 95.
Erigeron annuum (C. grisella, Pk.) 106.
Eriogonum tomentosum (C. rubella, Cke.) 23.
Euonymus Americanus (C. Euonymi, Ell.) 7.
Euonymus Europæus (C. Euonymi, Ell.) 7.
Eupatorium album (C. Eupatorii, Pk.) 45.
Galium Aparine (C. Galii, Ell. & Hol.) 58.
Garrya elliptica (C. Garryæ, Hark.) 61.
Gleditschia triacanthos (C. olivacea, B. & Rav.) 85.
Gnaphalium (C. Gnaphalii, Harkness) 68.
Gossypium (C. gossypina, Cke.) 69.
Gymnocarpus (C. inquinans, Cke.) 47.
Gymnocladus Canadensis (C. Gymnocladi, E. & K.) 25.
Heteromeles arbutifolia (C. Heteromeles, Hk.) 29.
Heuchera Americana (C. Heucheræ, E. & M.) 38.
Ilex glabra (C. Ilicis, Ell.) 32.
Ilex opaca (C. pulvinula, C. & E.) 78.
Isanthus cœruleus (C. Isanthi, E. & K.) 15.
Kalmia latifolia (C. sparsa, Cke.) 76.
Lepidium campestre (C. Lepidii, Pk.) 109.
Lobelia cardinalis (C. effusa, B. & C.) 89.
Lobelia syphilitica (C. effusa, B. & C.) 89.
Lonicera flava (C. antipus, Ell. & Hol.) 13.
Liriodendron Tulipifera (C. Liriodendri, Ell. & Hark.) 52.
Lupinus diffusus (C. Lupini, Cke.) 99.
Lupinus perennis (C. filispora, Pk.) 46, (C. longispora, Pk.) 111.
Magnolia glauca (C. Magnoliæ, Ell. & Hark.) 44.
Morus rubra (C. moricola, Cke.) 36.
Nymphæa odorata (C. nymphæacea, C. & E.) 22.
Passiflora lutea (C. fusco-virens, Sacc.) 91.
Pastinaca (C. Apii, Fres.) 50.
Peach leaves (C. persica, Sacc.) 104.
Persea palustris (C. purpurea, Cke.) 37.
Pentstemon cobæa (C. Pentstemonis, E. & K.) 31.

Pentstemon grandiflora (C. Pentstemonis, E. & K.) 31.
Phaseolus (C. Phaseolorum, Cke.) 97.
Phaseolus—Cultivated (C. canescens, E. & M.) 18.
Phlox divaricata (C. omphakodes, Ell. & Hol.) 26.
Physalis (C. Physalidis, Ell.) 6.
Phytolacca decandra (C. flagellaris, E. & M.) 1.
Plantago lanceolata (C. Plantaginis, Sacc.) 5.
Plantago major (C. Plantaginis, Sacc.) 5.
Polygala cruciata (C. grisea, C. & E.) 86.
Polygala lutea (C. grisea, C. & E.) 86.
Polygonum (C. Polygonorum, Cke.) 83.
Polygonorum Convolvulus (C. polygonacea, E. & E.) 30.
Potentilla palustris (C. Comari, Pk.) 113.
Prunus serotina (C. circumscissa, Sacc.) 27.
Pyrus arbutifolia (C. Pyri, Farlow) 92.
Quercus virens (C. polytricha, Cke.) 101.
Rafinesquia Californica (C. Rafinesquiæ, Hark.) 80.
Ranunculus repens (C. Ranunculi, Ell. & Hol.) 72.
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Rhus glabra (C. rhuina, C. & E.) 34.
Rhus Toxicodendron (C. Toxicodendri, Ell.) 107.
Reseda odorata (C. Resedæ, Fuckl.) 17.
Rose leaves (C. rosæcola, Pass.) 42.
Rumex acetosella (C. acetosella, Ell.) 93.
Sambucus Canadensis (C. depazeoides, Sacc.) 35.
Sanguinaria Canadensis (C. Sanguinariæ, Pk.) 71.
Smilax (C. smilacis, Thuem.) 33.
Solanum Dulcamara (C. Dulcamaræ, Pk.) 100 *a*.
Solidago altissima (C. reticulata, Pk.) 105.
Symplocarpus fœtidus (C. Symplocarpi, Pk.) 48.
Teucrium canadense (C. racemosa, E. & M.) 100, (C. Teucrii, E. & K.) 9.
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Trifolium agrarium, (C. zebrina, Pass.) 60.
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Vicia sativa (Viciæ, Ell. & Hol.) 59.
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Violet (C. Violæ, Sacc.) 3.
Watermelon leaves (C. citrullina, Cke.) 11.
Xanthoxylon Carolinense (C. Xanthoxyli, Cke.) 39.
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